SERVICE DATA
FILE NO. 330-239

TOSHIBA
MICROWAVE OVEN
ER-1010ETE

TOSHIBA
12:00

SPECIFICATIONS

Power Source		Voltage	220 Volts Single Phase
		Frequency	50 Hz
Power Consumption			1.9 kW (Approx.)
Microwave		Output	1000W/200W (DEFROST)
		Frequency	2,450 MHz
		Magnetron Type	2M137
Dimension	Outer	Height	370 mm
		Width	570 mm
		Depth	420 mm
	Inner (Cavity)	Height	224 mm
		Width	350 mm
		Depth	360 mm
		Usable Volume	28 ℓ
Timer		15 minutes	
Safety Interlock		Two switches operated by door handle	
Net Weight (with Tray)		29 kg	

Specifications are subject to change without notice

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Sep. 1984 Printed in Japan (So)

CAUTION

This device is to be serviced only by properly qualified service personnel. Consult the service data for proper service procedures to assure continued safety operation and for precautions to be taken to avoid possible exposure to excessive microwave energy.

CAUTION

MICROWAVE RADIATION

PERSONNEL SHOULD NOT BE EXPOSED TO THE MICROWAVE ENERGY WHICH MAY RADIATE FROM THE MAGNETRON OR OTHER MICROWAVE GENERATING DEVICE IF IT IS IMPROPERLY USED OR CONNECTED. ALL INPUT AND OUTPUT MICROWAVE CONNECTIONS, WAVEGUIDES, FLANGES, AND GASKETS MUST BE SECURE. NEVER OPERATE THE DEVICE WITHOUT A MICROWAVE ENERGY ABSORBING LOAD ATTACHED. NEVER LOCK INTO AN OPEN WAVEGUIDE OR ANTENNA WHILE THE DEVICE IS ENERGIZED.

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(a) Do not operate or allow the oven to be operated with the door open.

(b) Make the following safety checks on all ovens to be serviced before activiating the magnetron or other microwave source, and make repairs as necessary: (1) Interlock operation, (2) proper door closing, (3) seal and sealing surfaces (arcing, wear, and other damage), (4) damage to or loosening of hinges and latches, (5) evidence of dropping or abuse.

(c) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, or transmission line, and cavity for proper alignment, integrity, and connections.

(d) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this service data before the oven is released to the owner.

(e) A microwave leakage check to verify compliance with the performance standard should be performed on each oven prior to release to the owner.

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PROPER USE AND PRECAUTIONS

1. For Safe Operation

Damage that allows the microwave energy (that cooks or heats the food) to escape will result in poor cooking and may cause serious bodily injury to the operator.

IF ANY OF THE FOLLOWING CONDITONS EXIST, OPERATOR MUST NOT USE THIS APPLIANCE.

(Only a trained serviceman should make repairs.)

(1) A broken door hinge.
(2) A broken door mesh plate.
(3) A broken front panel, oven cavity.
(4) A loosened door lock.
(5) A broken door lock.

The door gasket plate and, oven cavity surface should be kept clean.

No grease, soil or spatter should be allowed to build up on these surfaces or inside the oven.

DO NO ATTEMPT TO OPERATE THIS APPLIANCE WITH THE DOOR OPEN. The microwave oven has concealed switches to make sure the power is turned off when the door is opened. Do not attempt to defeat them.

DO NOT ATTEMPT TO SERVICE THIS APPLIANCE UNTIL YOU HAVE READ THIS SERVICE MANUAL.

2. Correct Installation

(1) This microwave Oven weights 29 kg and must be placed on a horizontal base strong enough to support this weight.
(2) The Oven should be placed as far from high temperature heat source and vapour as possible.
(3) The power supply cord is 1.8 m long. Grounding is required when connecting the power source.
(4) Power consumption of this oven is approximately 2.0 kW. It is suggested that the unit is operated on such power line that can provide more power than this rating.
(5) Objects must not be placed on the top enclosure so as not to obstruct air flow for ventilation.

EXTERNAL VIEWS

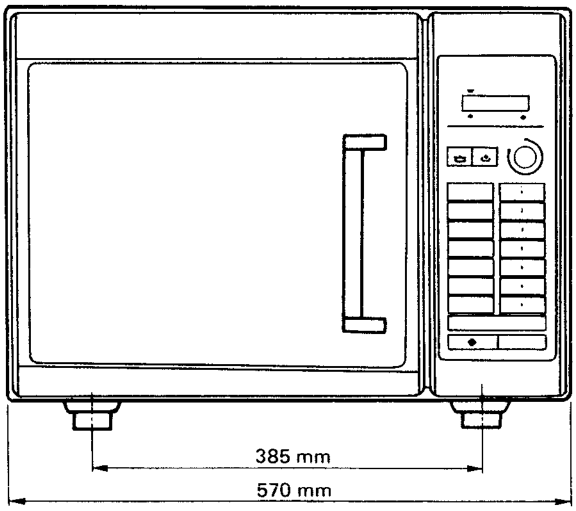


Fig. 1 Front View

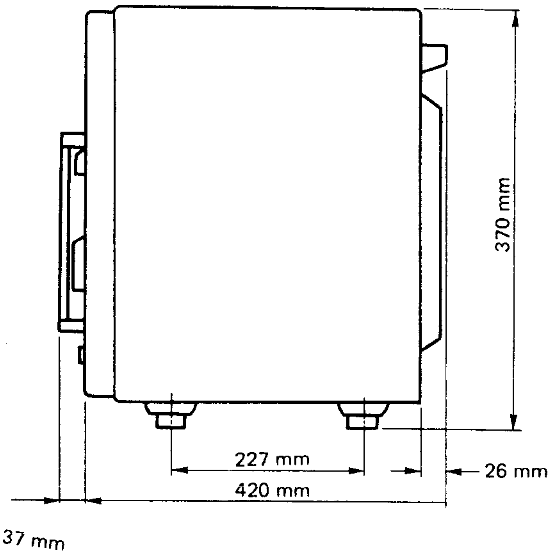
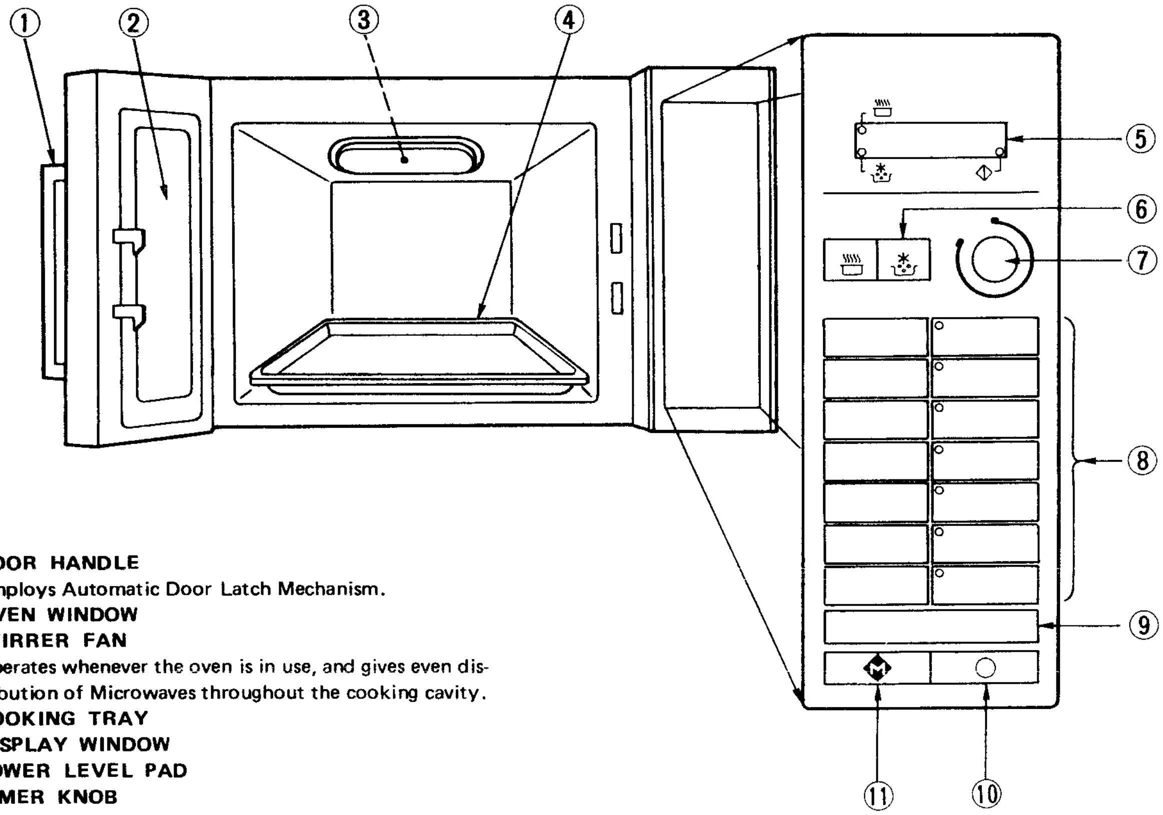


Fig. 2 Right Side View

FEATURES



1. **DOOR HANDLE**
   Employs Automatic Door Latch Mechanism.
2. **OVEN WINDOW**
3. **STIRRER FAN**
   Operates whenever the oven is in use, and gives even distribution of Microwaves throughout the cooking cavity.
4. **COOKING TRAY**
5. **DISPLAY WINDOW**
6. **POWER LEVEL PAD**
7. **TIMER KNOB**
8. **NUMBER PAD**
9. **START PAD**
10. **CLEAR PAD**
11. **MEMORY PAD**

Fig. 3

OPERATION

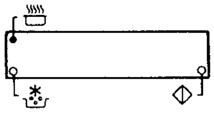
1. Open the door by pulling out on handle, the oven light will turn on. Place the food on the cooking tray.
2. Close the door, the oven light will turn off, and the latch will snap shut automatically locking the door. If the door is not closed properly, the oven will not start.
3. Set the power level simply by touching the FULL pad [♨] or the DEFROST pad [❄] . Either of dots, below the mark ♨ (FULL) or above the mark ❄ (DEFROST), will light up.
4. Set the timer, simply by turning the timer knob, to the desired cooking time; up to 15 min. when FULL setting, or up to 30 min. when DEFROST setting. The setting time will appear in the display window. NOTE: It can be set the cooking time with the increment as shown in the next table.
5. Touch the START pad [◇] , to start the cooking process. The dot above the mark ◇ (COOK) will light up and the oven light and fan will turn on. They operate during cooking.
6. The cooling will be continued until;
   1) the timer returns to '0'. The oven will automatically shut off and notice it by three beeps. The oven light, fan and all indication in the display window will turn off.
   2) the CLEAR pad [○] is touched. The oven will automatically shut off, and the oven light, fan and all indication in the display window will turn off.
   3) the door is opened during cooking. The oven will automatically shut off, and the fan will turn off. In the display window,the COOK dot will turn off and the FULL or DEFROST dot and the time will remain. To disappear them, touch the CLEAR pad [○] .
   The oven will not restart until the door is closed and the START pad [◇] is touched again.

FULL POWER SETTING	
Setting Time	Increment
up to 2 min.	5 sec.
over 2 min. up to 5 min. 30 sec.	10 sec.
over 5 min. 30 sec. up to 10 min.	30 sec.
over 10 min. up to 15 min.	1 min.

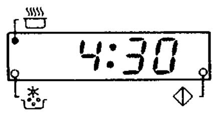
DEFROST POWER SETTING	
Setting Time	Increment
up to 2 min.	5 sec.
over 2 min. up to 5 min.	15 sec.
over 5 min. up to 10 min.	30 sec.
over 10 min. up to 16 min.	1 min.
over 16 min. up to 30 min.	2 min.

Example of Setting

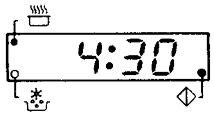
Touch [♨] pad.



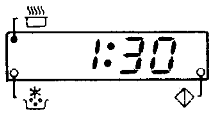
Set Timer to 4 min. 30 sec.



Touch [⌽] pad.



Open the door during cooking.



MEMORY

This oven employs the memory function which is available to enter 7 kinds of the cooking processes, using with the MEMORY pad [◈] and one of the NUMBER pads [1] [2] .... [7]
This is convenient for the repeatable cooking.

TO SET MEMORY with an example;

1. Touch FULL pad [♨]
2. Set the timer to 1 min. 30 sec.
3. Touch the NUMBER pad [1]
   A dot on the corner in the number pad will light up.
4. Touch MEMORY pad [◈]

The cooking process with FULL power for 1 min. 30 sec. was entered into the NUMBER pad [1] . The other cooking processes can be memorized into the each NUMBER pad with the same steps.

TO USE MEMORY

1. Touch the NUMBER pad [1] .
   A dot in the number pad [1] will light up and the memorized cooking process, the power level and the cooking time, will appear in the display window.
2. Touch the START pad [⌽]
   The oven will start the cooking process which is memorized.

TO CHANGE MEMORY

The memory cannot be cleared or changed even by touching the CLEAR pad [○] , except when the new cooking process with the same steps in 'TO SET MEMORY' is entered.

1. Set the power level.
2. Set the cooking time.
3. Touch the NUMBER pad in which the memory is to be changed.
4. Touch MEMORY pad.

NOTE: The area beside each NUMBER pad may be served to put on the paper for your quick reference of the memory.

INTERLOCK MECHANISM FUNCTIONS AND ADJUSTMENTS

The door lock mechanism is a device which has been specially designed to completely eliminate microwave radiation when the door is opened during cooking, and thus to perfectly prevent the danger resulting from the leakege of microwave.

> Whenever the door lock mechanism is repaired, check microwave leakage according to the procedure specified in page 19.

1. Mechanical Function

When the door is closed, the catch under the door handle snaps on the latch on the oven, locking the oven door. If the door is not closed properly, the oven will not operate. Fig. 4 shows the closed door condition.
When the door is closed, the lower catch pushed the slider of the interlock monitor switch to bring it "OFF" condition, then the catches, upper and lower, individually engage with the latch and the tip of the catches pushes the lever which presses the button of the primary/secondary interlock switch to bring them under "ON" condition.

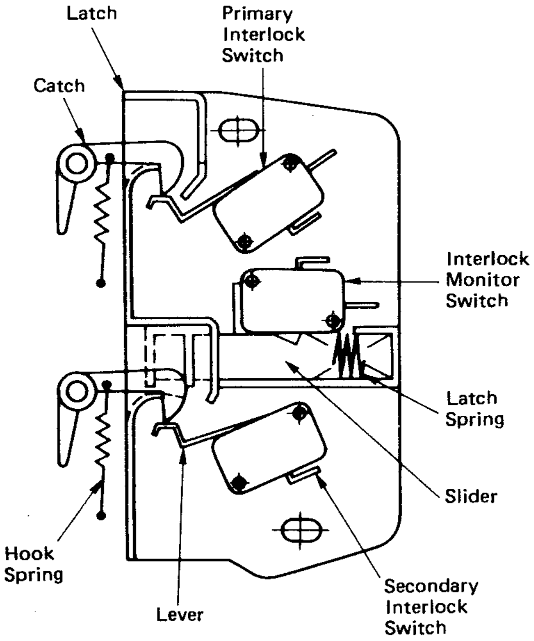

Latch
Primary Interlock Switch
Catch
Interlock Monitor Switch
Latch Spring
Slider
Hook Spring
Lever
Secondary Interlock Switch

Fig. 4

When the handle is pulled to open the door, as illustrated in Fig. 5, the catches disengage from the latch, leaving the lever in a free state, thus the lever is pushed by the switch button to turn off the switch and open the circuit. Then the lower catch releases the slider to bring the interlock monitor switch under "ON" condition.

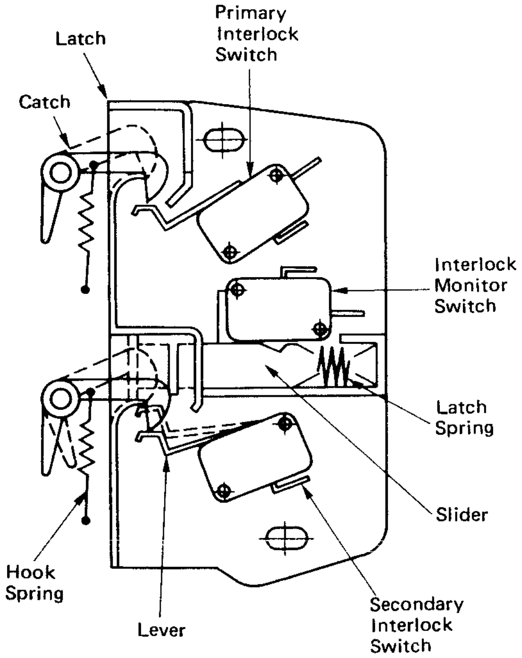

Latch
Primary Interlock Switch
Catch
Interlock Monitor Switch
Latch Spring
Slider
Hook Spring
Lever
Secondary Interlock Switch

Fig. 5

2. Adjustment Procedure

(1) Preliminaries:
The primary and secondary interlock switch position should be adjusted such that the switches become "ON" condition where the lever is lowered by 4 mm measured at the tip of the lever. (Refer to Fig. 6)

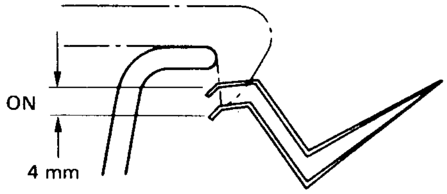


Fig. 6

(2) Adjustment steps:
- a) Loosen two mounting screws.
- b) Adjust the primary/secondary interlock switch assembly position.
- c) Confirm the movement described in (1).
- d) Tighten the two mounting screws.

DISASSEMBLY INSTRUCTIONS

1. Cabinet and Back Cover Removal (Refer to Fig. 7)

(1) Remove nine screws '1' to '7' on the back and '8' to '9' on the side of the cabinet.
(2) (The screws with washer are located '2' to '6'.)
(3) Remove the cabinet.
(4) Remove four screws '10' to '13'.
(5) Remove the back cover.

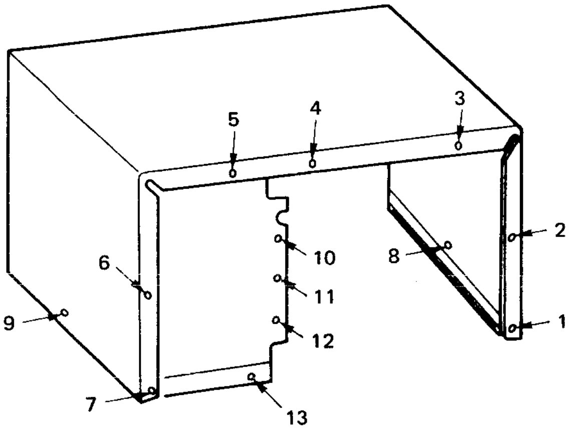


Fig. 7

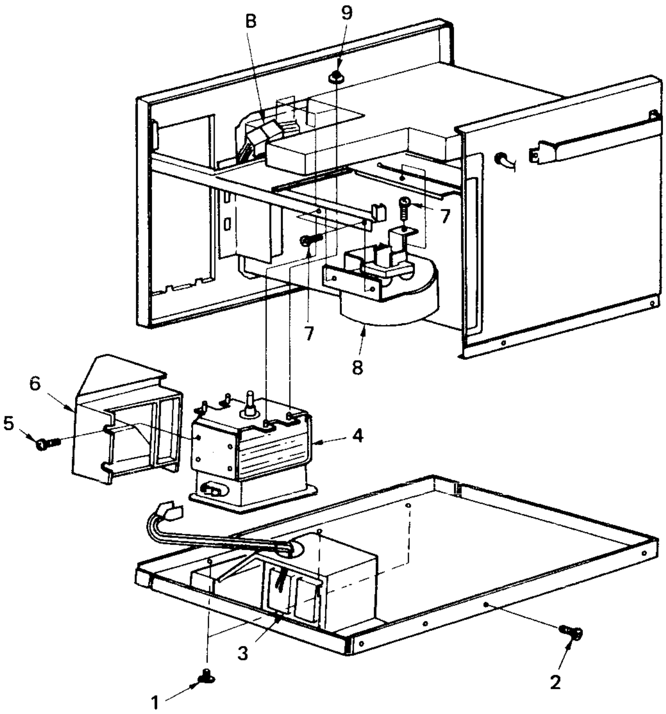


Fig. 8

2. Oven Assembly Removal (Refer to Fig. 8)

(1) Remove the cabinet parts.
(2) Remove three screws '1' at bottom of the oven front, and a screw '2' on the back of oven.
(3) Disconnect the connector 'B' and two leads of HV transformer '3' from the magnetron '4'.
(4) Remove the oven assembly.

3. Magnetron Removal (Refer to Fig. 8)

(1) Remove the oven assembly.
(2) Remove a screw '5' which secure the duct '6', and remove it.
(3) Remove three screws '7' which secure the blower '8', and remove it.
(4) Remove four nuts '9'.
(5) Remove the magnetron '4'.

CAUTION-MICROWAVE LEAKAGE

Never install the magnetron without the metallic gasket plate which is packed with each magnetron to prevent microwave leakage.
(Refer to Fig. 9 and 10)
Whenever repair work is carried out on magnetron, check the microwave leakage according to the procedure specified in the "Microwave Leakage Test" on page 20.

* * * * DO NOT OPERATE WITHOUT * * * *
CABINET

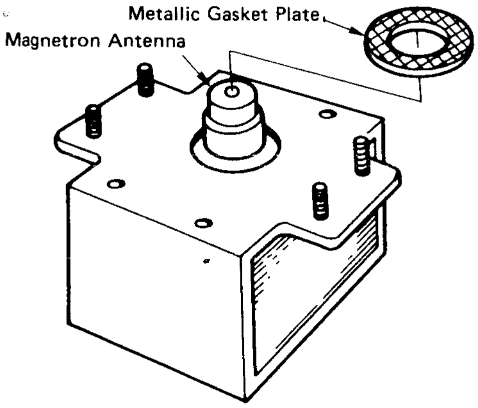

Metallic Gasket Plate
Magnetron Antenna

Fig. 9

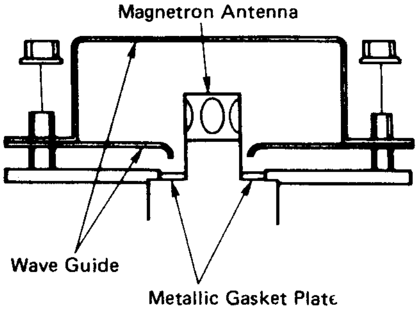

Magnetron Antenna
Wave Guide
Metallic Gasket Plate

Fig. 10

4. HV Transformer Removal (Refer to Fig. 11)

(1) Remove the cabinet parts and the oven assembly.
(2) Remove four screws '1' which secure the plate '2'.
(3) Remove the plate '2'.
(4) Remove four screws '3'.
(5) Remove the HV transformer '4'.

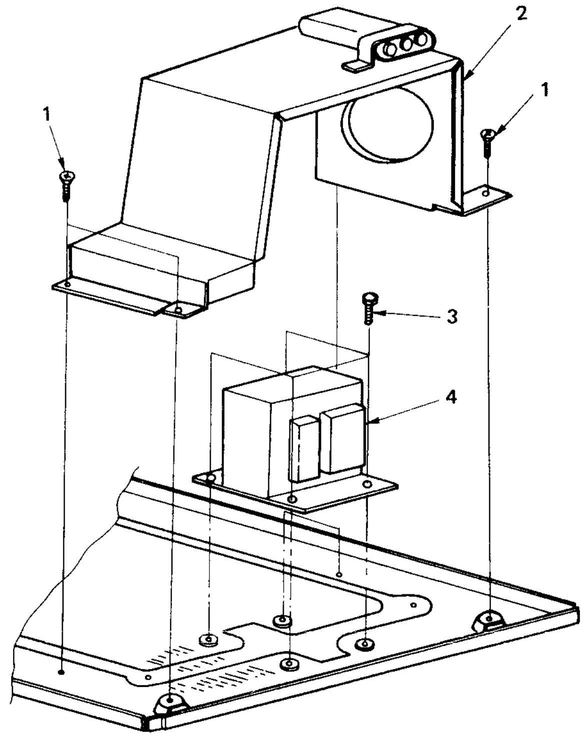


Fig. 11

CAUTION:
The connection of HV Leads of the capacitor must be as shown in Fig. 12.

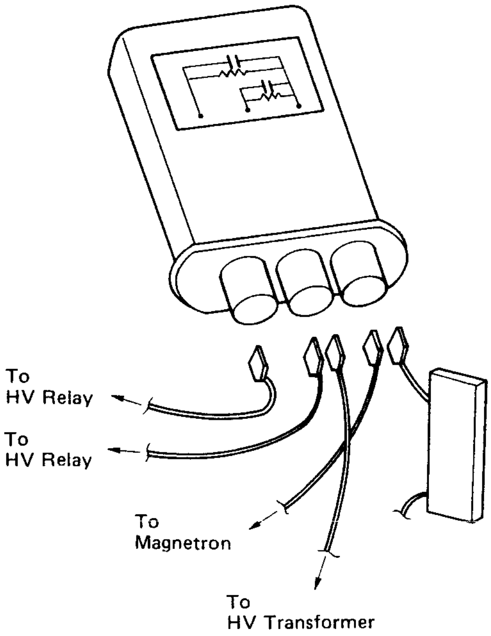

To
HV Relay
To
HV Relay
To
Magnetron
To
HV Transformer

Fig. 12

5. Control Panel Assembly Removal (Refer to Fig. 13)

(1) Remove the cabinet parts.
(2) Disconnect the Connector 'A'.
(3) Remove two screws '1'.
(4) Remove the control panel assembly.

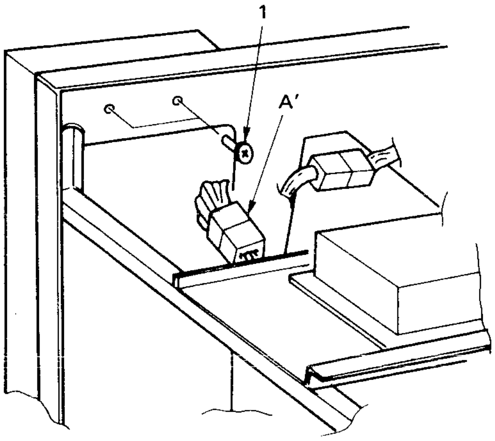


Fig. 13

6. Door Assembly Removal (Refer to Fig. 14)

(1) Remove the cabinet parts.
(2) Remove two screws '1' at top door hinge.
(3) Remove two screws '2' at bottom door hinge.
(4) Remove the door assembly.

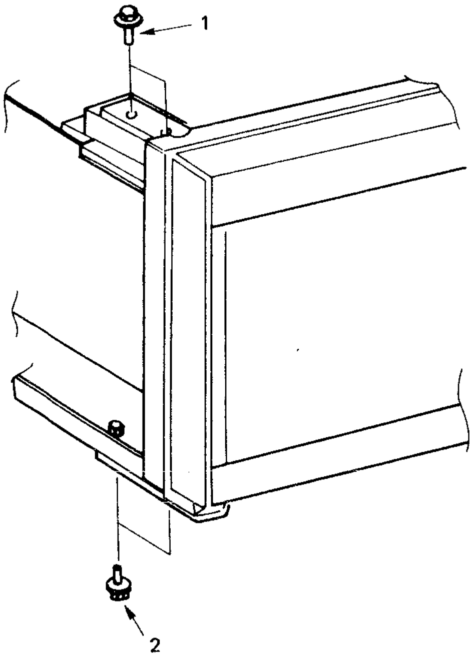


Fig. 14

7. Outer Screen Barrier Removal (Refer to Fig. 15)

(1) Remove the cabinet parts and the door assembly.
(2) Remove ten screws '1' which secure the door choke plate '2'.
(3) Remove the door choke plate '2', the inner screen barrier '3' and the screen '4'.
(4) Remove the door cover '5'.
(5) Remove six screws '6' which secure the door sash '7'.
(6) Remove the door sash '7'.
(7) Remove three screws '8' which secure the mount plate '9', and remove it.
(8) Remove four screws '10' which secure the upper hinge unit '11' and lower hinge unit '12', and remove them.
(9) Remove the door handle '13'.
(10) Remove the outer screen barrier '14'.

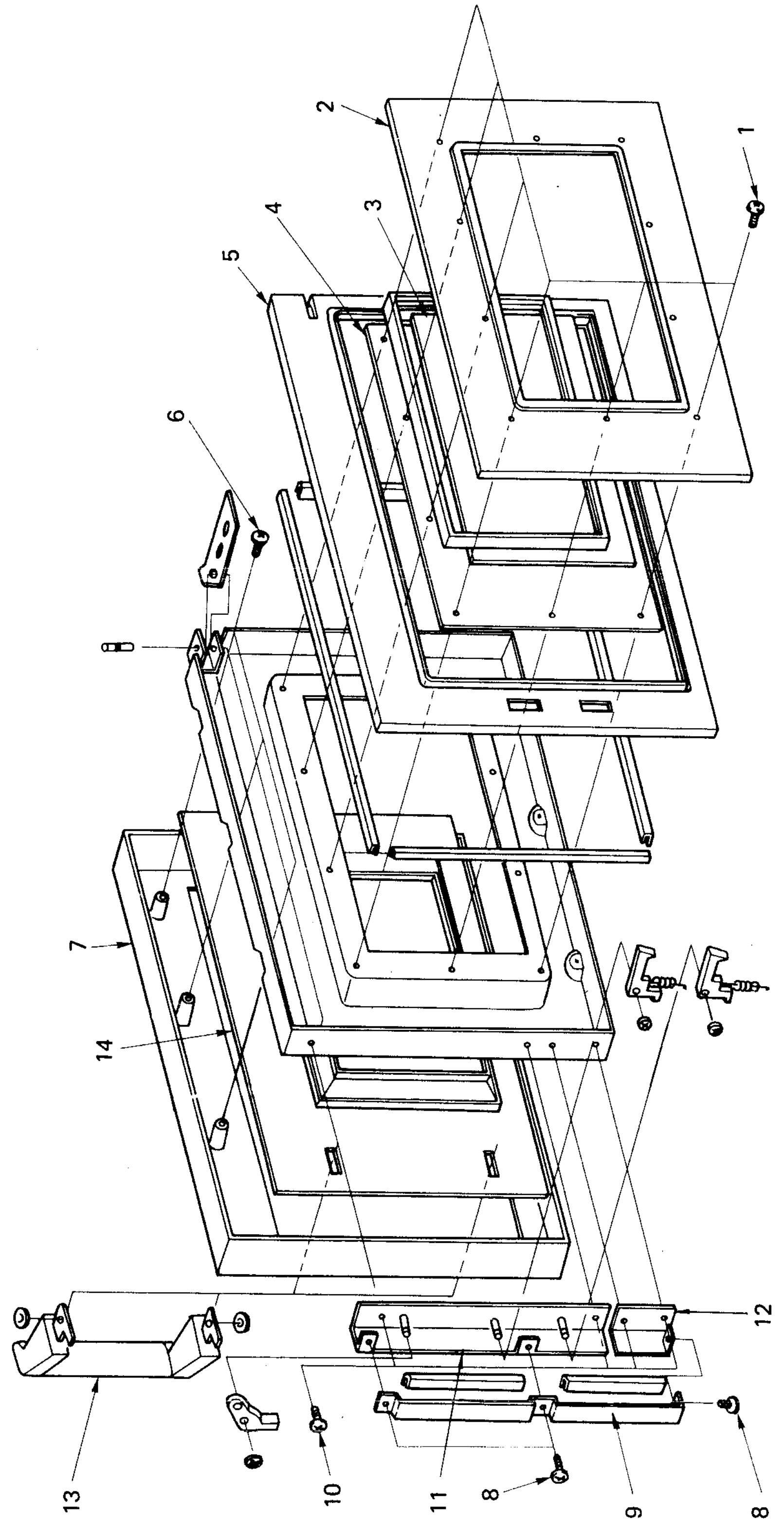

1
2
3
4
5
6
7
14
13
10
11
8
9
8
12

Fig. 15

8. Caution

WHENEVER ANY OVEN DOOR PARTS ARE REPAIRED OR REPLACED,CHECK MICROWAVE LEAKAGE.
(Refer to Fig. 16)

(1) Prepare a piece of paper and cut it approx. 25 mm (1") wide by 100 mm (4") long.
(2) Open the door and put it on the oven front plate.
(3) Close the door to hold it between the door gasket plate and the oven front.
(4) Draw out the paper. If it is not drawn smoothly, the door gasket plate is working properly.
(5) Repeat above procedure at other several position to check for possible gap around the door. But if any gap are found, adjust the position of the hinge or the latch position of secondary interlock according to the steps described on item 9, "Hinge and Latch Position Adjustment".

NOTE:

Small gap may be acceptable if the microwave leakage does not exceed 1 mw/cm^2.

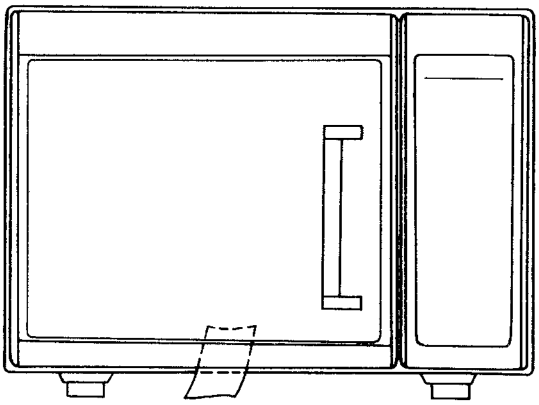


Fig. 16

9. Hinge and Latch Position Adjustment

(Method to reduce the gap between the gasket plate and the oven front)

(1) To reduce the gap located on part "A". (See Fig. 17)
  a) Loosen two screws on bottom hinge, then push the door to contact the gasket plate to oven front.
  b) Tighten two screws.
  c) Check the gap
(2) To reduce the gap located on part "B". (See Fig. 17)
  a) Loosen two screws on top hinge, then push the door to contact the gasket plate to oven front.
  b) Tighten two screws.
  c) Check the gap

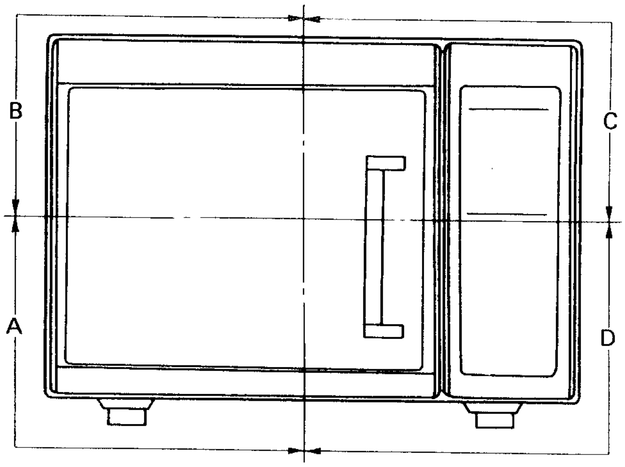


Fig. 17

(3) To reduce the gap located on part "C" and "D". (See Fig. 17)
  a) Loosen three screws on latch located right of oven body. (Fig. 18)
  b) Draw the latch inward slightly.
  c) Tighten two screws.
  d) Check the gap

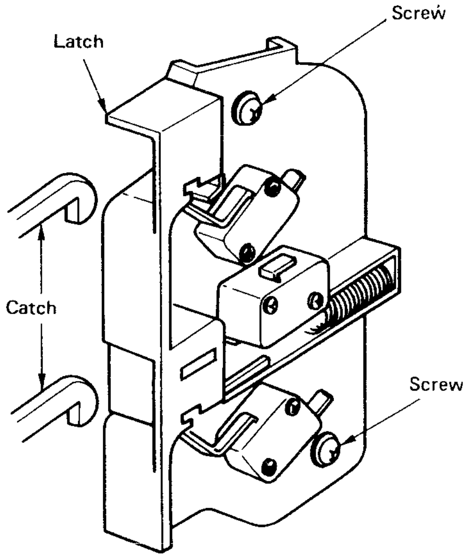


Fig. 18

10. Control Panel Parts Removal

10.1 Control Panel Assembly Removal (Refer to Fig. 20)

1) Remove the cabinet parts.
2) Disonnect three connectors, T1, T2, and T3. (Refer to Fig. 20)
3) Remove two screws '1' holding the panel assembly to the oven front.
4) Pull out the panel assembly from the oven front.

10.2 Key Board Assembly Removal (Refer to Fig. 20)

1) Remove the panel assembly.
2) Remove four screws '2' holding the Key Board Assembly '5' to the panel sash '4'.
3) Pull Key Board Assembly '5'.

10.3 EDT-1010 Board Assembly Removal

1) Remove the panel assembly.
2) Remove two screws '3' holding the LED '7' to the Key Board Assembly '5'.
3) Disconnect the connector, T4, T5 and T6, from EDT-1010 Board Assembly.
4) Remove EDT-1010 Board Assembly '6' by pushing the latch of supports.

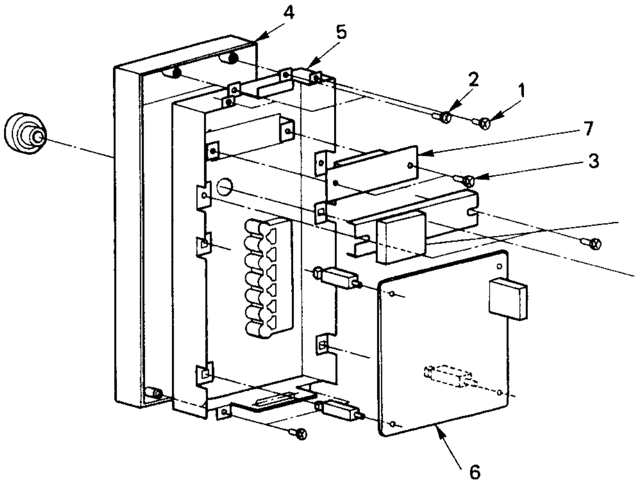


Fig. 20

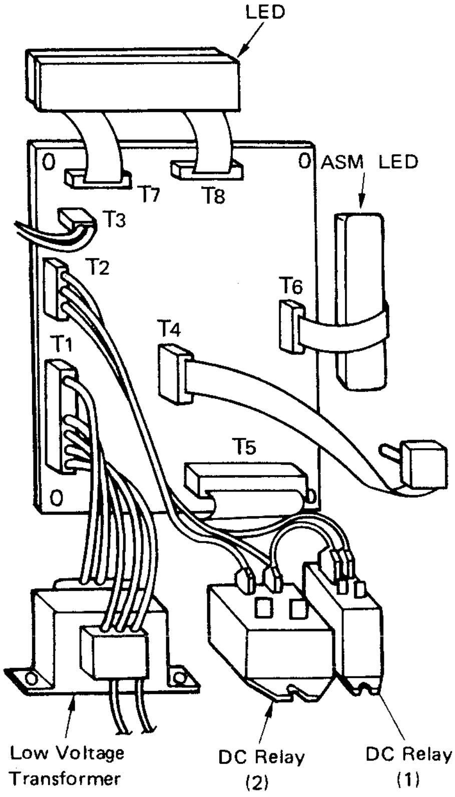

LED
T7
T8
T3
T2
T1
ASM LED
T6
T4
T5
Low Voltage Transformer
DC Relay (2)
DC Relay (1)

Fig. 19

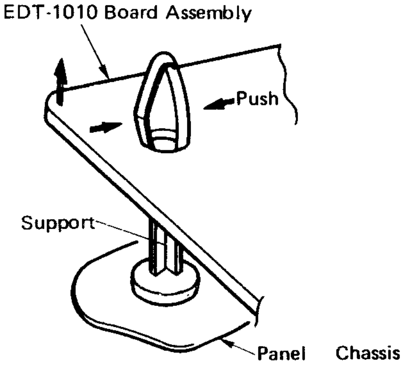

EDT-1010 Board Assembly
Push
Support
Panel
Chassis

Fig. 21

TROUBLESHOOTING CHART

DANGER OF HIGH VOLTAGE

4000 volts exist at the high voltage area.
Do not operate the oven with the cabinet parts removed. Do not remove the cabinet parts unless the power cord is unplugged from wall outlet.

Determine whether or not a defect is in the control panel block or others first.
The control panel assembly is divided into five units, key board assembly, timer, two of LED board assemblies and EDT-1010 board assembly.
When they are judged to be defect according to following troubleshooting charts, they should be replaced by unit. Do not check, repair, or adjust the control panel block, unless the power cord is unplugged from wall outlet.

1. Troubleshooting by unit replacement according to the symptoms indicated

1.1 Key Board Assembly

The following symptoms indicate a defective key board assembly. Replace the key board assembly.

1) When touching the pads, a certain pad produces no signal at all.
2) When touching a pad, two figures or more are displayed.
3) When touching the pads, sometimes a pad produces no signal.
4) Only one indicator does not light up. (In connection with EDT-1010 board assembly).

1.2 LED Indicator Board Assemblies

The following symptoms indicate a defective LED indicator board assembly. Replace the LED indicator board assembly.

1) A certain digit, and/or some segments do not light up.
2) At a certain digit, brightness is low when it lights up. (In connection with EDT-1010 board assembly and timer)

1.3 EDT-1010 Board Assembly

The following symptoms indicate a defective EDT-1010 board assembly. Replace the EDT-1010 board assembly.

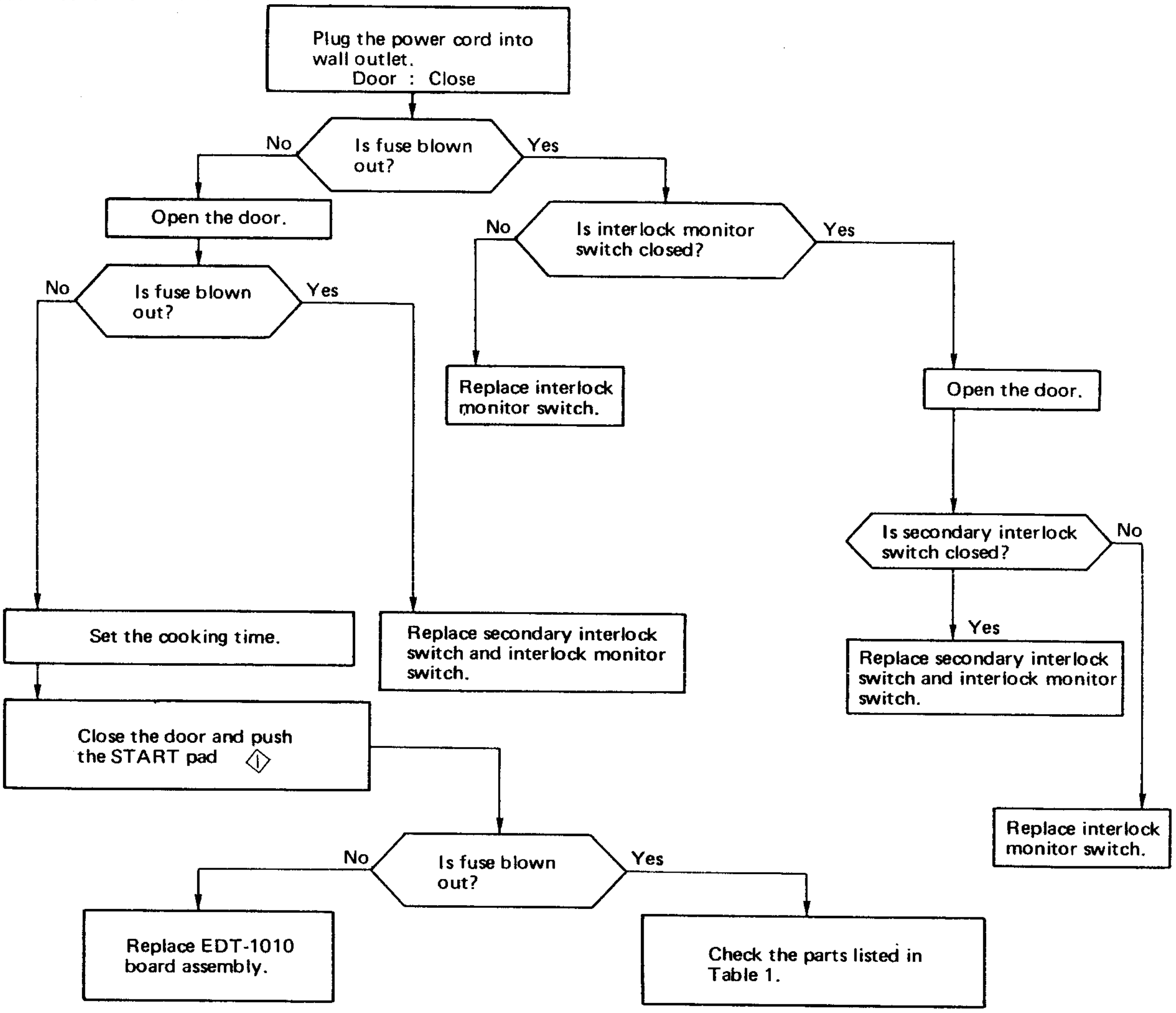
1) In connection with key board assembly.
   a) When touching the pads, a certain group of pads do not produce the signal.
   b) When touching the pads, no pads produce the signal.
2) In connection with LED indicator board assembly.
   a) The corresponding segments of all digits do not light up, or they continue to light up.
   b) Wrong figure appears.
   c) The figures of all digits flicker.
3) Other possible troubles.
   a) Buzzer does not sound or sounds continuously. (Note: During pushgin CLEAR pad $\boxed{\bigcirc}$, buzzer will sound continuously.)

1.4 Timer

The following symptoms indicate a defective timer. Replace the timer.

1) In connection with LED indicator assemblies.
   a) When turning the timer knob, only a certine time is indicated.
   b) When setting the timer knob to the maximum setting, any indication other than the following is displayed;
      at FULL power setting : 15 : 00
      at DEFROST power setting : 30 : 00

2. Main Fuse is blown out


Plug the power cord into wall outlet.
Door : Close
Is fuse blown out?
No
Yes
Open the door.
Is fuse blown out?
No
Yes
Is interlock monitor switch closed?
No
Yes
Replace interlock monitor switch.
Open the door.
Is secondary interlock switch closed?
No
Yes
Set the cooking time.
Replace secondary interlock switch and interlock monitor switch.
Replace secondary interlock switch and interlock monitor switch.
Close the door and push the START pad
Replace interlock monitor switch.
Is fuse blown out?
No
Yes
Replace EDT-1010 board assembly.
Check the parts listed in Table 1.

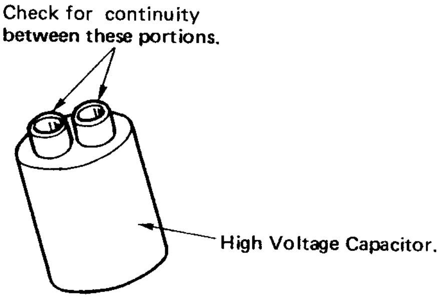
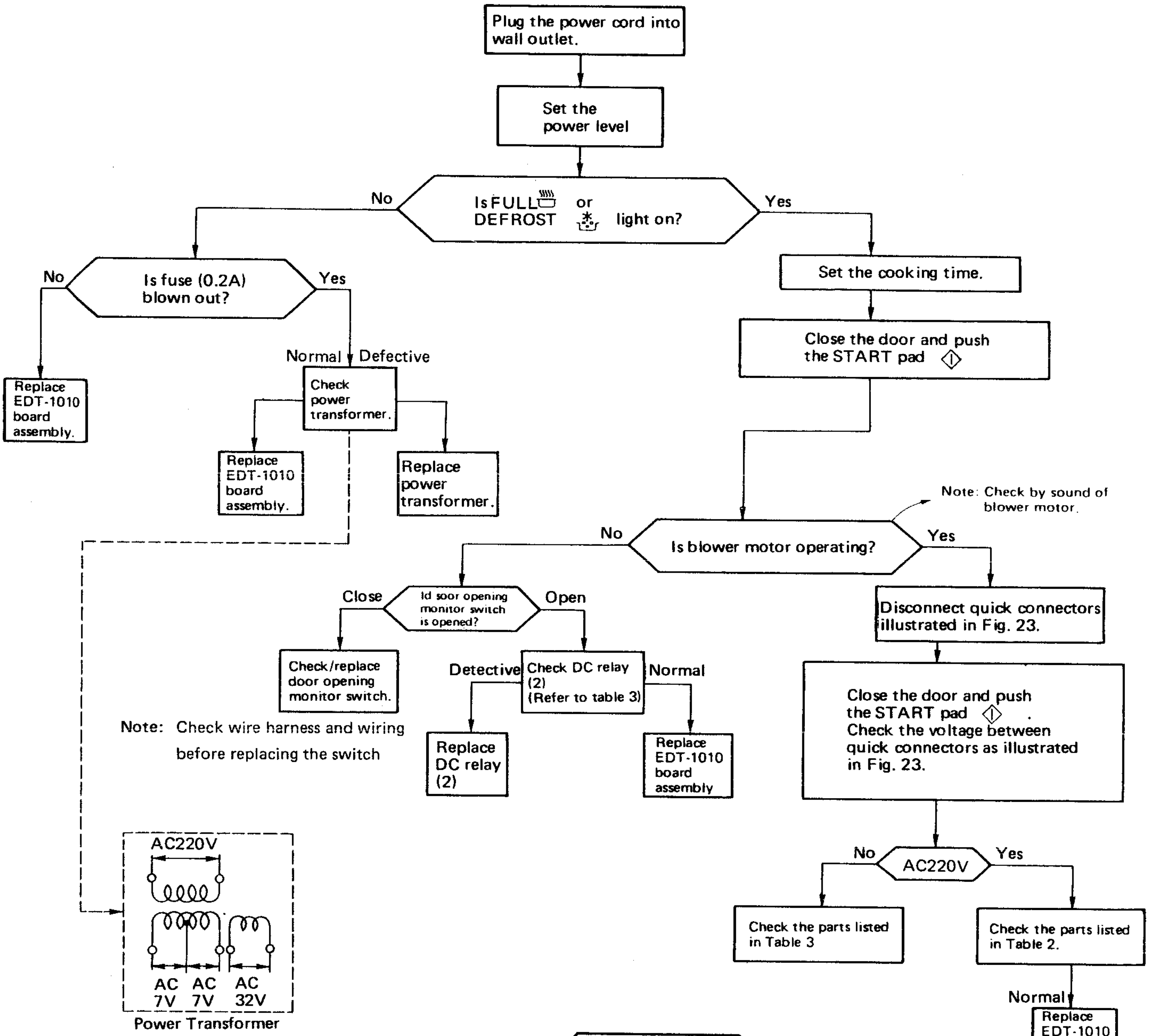

Check for continuity between these portions.
High Voltage Capacitor.

Fig. 22

Table 1

Parts	Cause	Diagnosis	Remedy
HV Transformer	1) Layer short on the secondary winding.	The fuse does not blow right away, but it blows in a few seconds, then there is a layer short.	Replace HV transformer
HV Capacitor	2) Poor insulation between capacitor terminals.	Check for the continuity between capacitor terminals. If there is continuity, capacitor is defective. (See Fig. 22)	Replace HV capacitor

3. Magnetron does not operate (Food will not become hot)


Plug the power cord into wall outlet.
Set the power level
Is FULL or DEFROST light on?
No
Yes
Is fuse (0.2A) blown out?
No
Yes
Replace EDT-1010 board assembly.
Normal
Defective
Check power transformer.
Replace EDT-1010 board assembly.
Replace power transformer.
AC220V
AC 7V
AC 7V
AC 32V
Power Transformer
Set the cooking time.
Close the door and push the START pad
Is blower motor operating?
Note: Check by sound of blower motor.
No
Yes
Id soor opening monitor switch is opened?
Close
Open
Check/replace door opening monitor switch.
Note: Check wire harness and wiring before replacing the switch
Check DC relay (2) (Refer to table 3)
Detective
Normal
Replace DC relay (2)
Replace EDT-1010 board assembly
Disconnect quick connectors illustrated in Fig. 23.
Close the door and push the START pad . Check the voltage between quick connectors as illustrated in Fig. 23.
AC220V
No
Yes
Check the parts listed in Table 3
Check the parts listed in Table 2.
Normal
Replace EDT-1010 board assembly

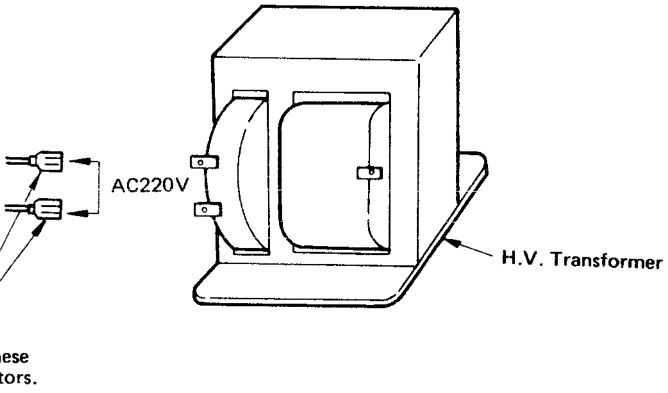

AC220V
H.V. Transformer
Disconnect these quick connectors.

Fig. 23

Table 2

Parts	Cause	Diagnosis	Remedy
Magnetron	1) Open magnetron heater.	Check continuity of magnetron heater with wires removed using multimeter. If there is no continuity, magnetron heater is open.	Replace magnetron.
	2) Shorted magnetron	Connect megger leads to magnetron terminals and magnetron body. If there is contiuity, magnetron is defective. (In this event. main fuse will be blown.)	Replace magnetron.
Rectifier	Defective rectifier	Check continuity of recrifier in forward and backward direction with DC megger. If there is continuity in backward direction, rectifier is defective. (In this event, high-voltage capacitor will be come hot.)	Replace rectifier.
H.V transformer	Open coil of H.V. transformer	Check primary coil and secondary coil for continuity. If there is no continuity, transformer is defective.	Replace H.V. transformer.
H.V. capacitor	Shorted H.V. capacitor	Check continuity of capacitor terminals with wires removed. If there is continuity, capacitor is defective. If capacitor shorts, fuse is blown out.	Replace H.V. capacitor.

Table 3

Parts	Cause	Diagnosis	Remedy
Secondary interlock switch	Poor contact of secondary interlock switch	Check the terminals for continuity with wires removed using multimeter, pressing switch ON and OFF repeatedly.	Replace or adjust.
Primary interlock switch	Poor contact of primary interlock switch		
DC relay (2)	Defective DC relay (2)	Check relay terminals for continuity with wires removed and energizing DC relay coil. If there is no continuity between terminals, DC relay is defective.	Replace DC relay (2).
Relay (3)	Defective relay (3)	Check realy terminals for continuity with wires removed and energizing relay coil. If there is no continuity between terminals, relay is defective.	Replace relay (3).
Magnetron thermostat or oven thermostat	1) Magnetron thermostat open.	Check thermostat terminals for continuity with wires removed using multimeter. If there is no continuity between terminals, thermostat is defective.	Replace thermostat.
	2) Oven thermostat open.		

4. Others

Table 4

Trouble	Cause	Diagnosis	Remedy
Oven lamp does not illuminate, when door is open.	1) Fuse blown out.	Check fuse in fuse holder.	Replace fuse.
	2) Poor contact of power cord.	Check power cord for continuity. Also check to see if power leads are securely wired.	Adjust or replace power cord.
	3) Lamp blown out.	Check lamp.	Replace lamp.
	4) Magnetron thermostat open. 5) Oven thermostat open.	Lamp does not illuminate, even after lamp is replaced when door is open. Check thermostat terminals for continuity with wires removed using multimeter. If there is no continuity between terminals, thermostat is defective.	Replace thermostat.
	6) Defective lamp control switch	Check wiring on each terminal, NO, NC and COM. If it is correct, check terminals for continuity with wire removed using multimeter, pressing switch ON and OFF repeatedly.	Replace lamp control switch
Stirrer fan does not rotate.	1) Defective stirrer Motor	If motor does not operate with 240V applied to motor terminals, motor may be faulty.	Replace stirrer motor
	2) Stirrer fan caught by cavity or spatter shield	Check fan movement.	Adjust fan.
Sparking (or arcing in cavity).	1) Carbonized dust in oven.	Check whether dust accumulates on spatter shield or its support.	Clean oven cavity.
	2) Stirrer fan touches cavity wall.	Check fan movement.	Adjust fan.
Microwave turns off during cooking cycle.	1) Too small load of food.	If small amount of food is heated for a long time, microwave is turned off during operation.	To increase load, place a cup of water into oven cavity in addition to food to be cooked.
	2) Defective magnetron thermostat	In this case, oven lamp does not illuminate but blower operates normally.	Replace thermostat.
Only regular output.	1) Defective DC relay (1)	Check relay terminals for continuity with wires removed and energizing DC relay coil. If there is no continuity between terminals, DC relay is defective.	Replace DC relay (1).
	2) Defective HV relay.	Check relay terminals for continuity with wires removed and energizing HV relay coil. If there is no continuity between terminals, HV relay is defective. **CAUTION:** HV wire must be removed before check.	Replace HV relay.

MEASUREMENT

1. Microwave Output Power

1.1 standard Method

Microwave output power can be checked by indirectly measuring the temperature rise of a certain amount of water exposed to the microwave as directed below.

Oven should be run for pre-heating about 30 minutes before measurement.

(1) Prepare 2 glasses or plastic breakers or similar cups.

(2) Pour 1 liter of cold tap water (it's temperature should be 10 ± 1°) into each beaker.

(3) Stir the water with a thermometer and note water temperatures, T_1 and T_2, in °C.

(4) Put both beakers in place on the tray (it's temperature should be the same as ambient). (Fig. 24)

(5) Heat the water for a period of exactly 1 minute 30 seconds.

(6) Take both beakers out of the oven, stir the water with the thermometer, and note the temperatures, T_1' and T_2', in °C.

(7) Calculate the temperature rise of the water in each beaker by:

$\Delta T_1 = T_1' - T_1$ (°C)

$\Delta T_2 = T_2' - T_2$ (°C)

(8) Obtain the microwave output power by the following formula or by using the monograph in Fig. 20.

$$\boxed{\text{Power} = 100\text{x} \frac{\Delta T_1 + \Delta T_2}{2} \text{ (watts)}}$$

The power measured should be 1000W ± 12.5%

CAUTION:

1. Heating time should be exactly 1 minute and 30 seconds.
2. Water load should be measured exatctly to 2 liters.
3. Input power voltage should be exactly 220 V as specified.
4. Ambient temperature should be 20 ± 1°C.

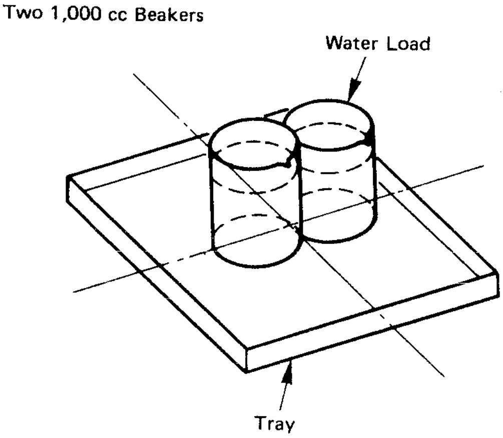


Fig. 24

1.2 Alternative Simplified Method

1) Fill a glass cup with 200 milliliters cold tap water.

2) Put the cup into the oven.

3) Heat for about 3 minutes.

4) It can be easily confirmed that the power output is in the normal level if the water in the cup is boiling.

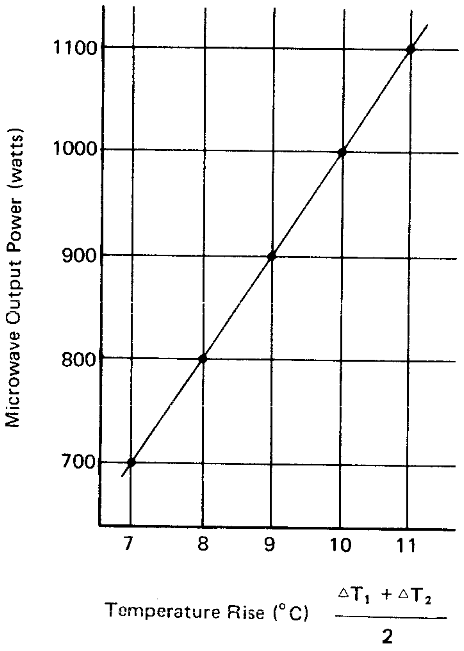


Fig. 25 Monograph of Microwave Output Power for Water Temperature Rise in the Oven

2. Microwave Heat Distribution-Heat Evenness.

The microwave heat distribution can be checked by indirectly measuring the water temperature rises at certain position in the oven as directed below.

(1) Prepare five beakers made of 'Pyres' and having 100 cc capacity each.
(2) Measure exactly 100 cc of water load with use of a measuring cylinder and pour it into each beaker.
(3) Measure the temperature of each water load. (The readings shall be taken to one place of decimals.)
(4) Put each beaker in place on the cooking tray as illustrated in Fig. 26 and start heating.
(5) After heating 2 minutes, measure the temperatures of water in each beaker.
(6) Calculate the temperature difference for each water load to get the heat distrubution rate by the following formula.

$$\text{Heat distribution rate} = \frac{\text{Minimum temperature rise}}{\text{Maximum temperature rise}} \times 100\,\%$$

The result should exceed 65 %.

Five 100 cc Beakers

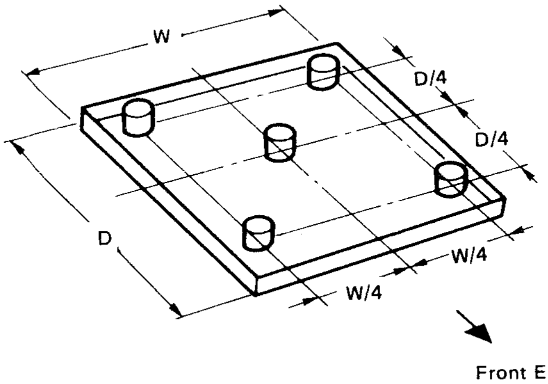


Fig. 26

3. Electrical Continuity Check of Interlock Switches

3.1 Procedure

NOTE:

Remove the power plug from the wall receptacle before testing.

1. Primary Interlock Switch

1) Disconnect two connectors from primary interlock switch.
2) Connect the ohmeter leads between the terminals of the primary interlock switch.
3) Read the value of resistance between the terminals of the switch, when the door is opened, and when the door, is closed.

2. Secondary Interlock Switch

1) Disconnect two connectors from secondary interlock switch.
2) Connect the ohmeter leads between the terminals of the secondary interlock switch.
3) Read the value of resistance between the terminals of the switch, when the oven door is opened, and when the oven door is closed.

3.2 Judgement

The value of resistance should be applied to the value specified below.

Door	Open	Closed	Push Cook Button
Primary Interlock Switch	∞	0	0
Secondary Interlock Switch	∞	0	0
Interlock Monitor Circuit	0	∞	∞

When value obtained is not acceptable, the switches should be replaced or adjusted again.

4. Microwave Leakage Test

4.1 Warning

(1) DO NOT place your hands into any suspected microwave radiation field unless the safe density level is known.
(2) Always start measuring of an unknown field to assure safety for operating personel from radiation.
(3) Slowly approach the unit under test until the radiometer reads an appreciable radiation leakage from the unit under test.
(4) Care should be taken not to place the eyes in direct line with the source of microwave energy.

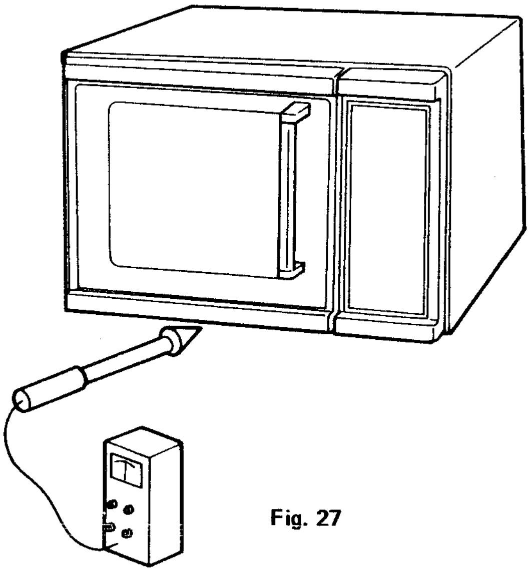


Fig. 27

4.2 Method

The power density of the microwave radiation emitted by the microwave oven should not exceed 1mW/cm^2 at any point 50 mm or more away from the external surface of the oven as measured prior to acquisition by a purchaser and thereafter once the oven is in use, 5mW/cm^2 at any point 50 mm or more away from the external surface of the oven.

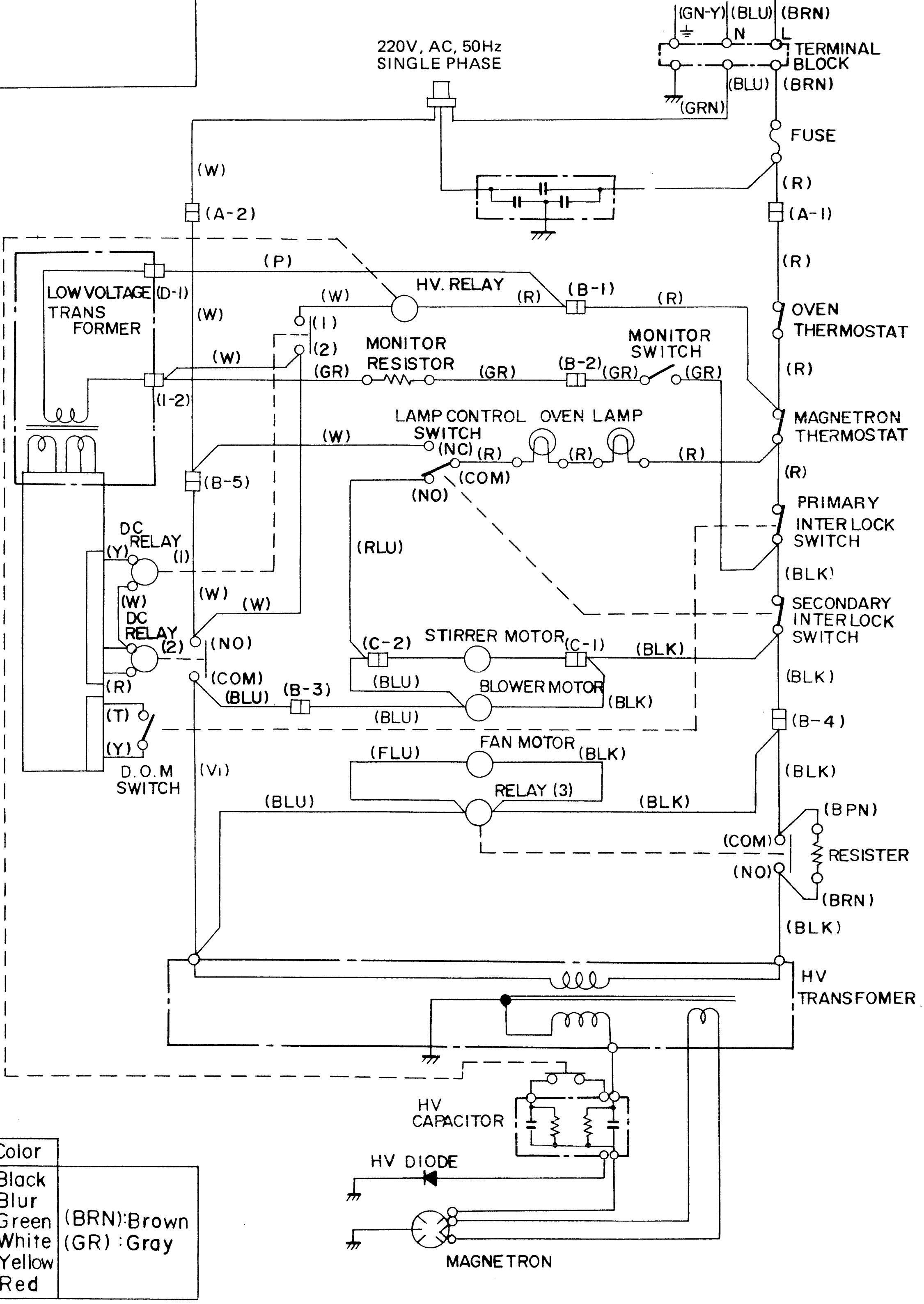
Measurements should be made with the oven operating at its maximum output and containing a load of 275 ± 15 mililiters of tap water initially at 20 ± 5°C placed within the cavity at the center of the load-carrying surface provided by the manufacturer. The water container should be a low from 600 mililiters beaker having an inside diameter of approximately 85 mm and made of an electrically non-conductive material such as glass or plastic.

4.3 Procedures

(1) Prepare 600 cc glass or plastic container.
(2) Pour 275 ± 15 mililiters of tap water initially at 20 ± 5°C in the container.
(3) Place it at the center of the tray and set it in a cavity.
(4) Operate the oven.
(5) Measure the microwave leakage using a Narda 8100 or similarly approved microwave leakage meter after a few minutes operation.

WIRING DIAGRAM

CONDITION OF OVEN
DOOR : CLOSED

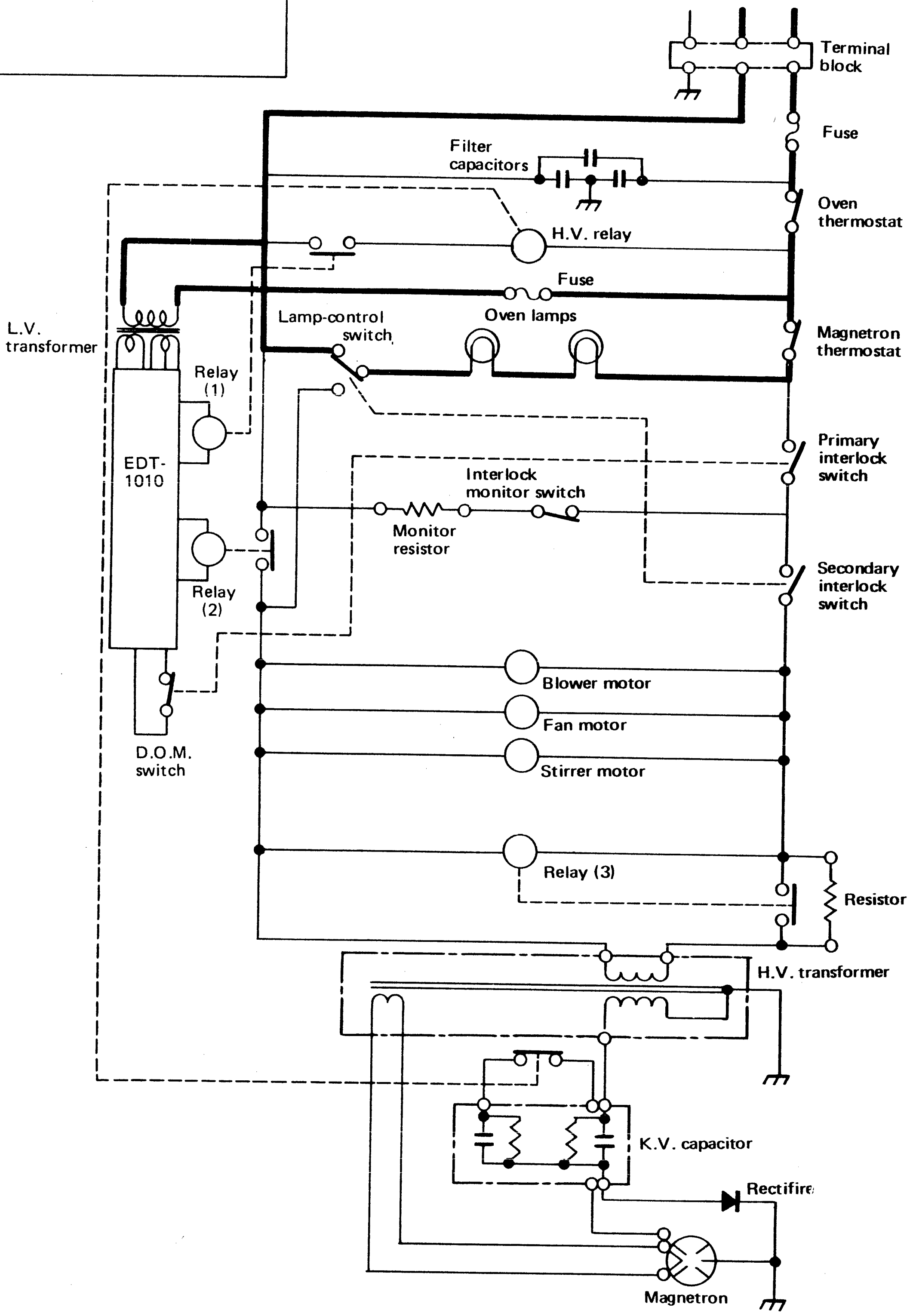

(GN-Y) (BLU) (BRN)
N
L
TERMINAL BLOCK
(BLU) (BRN)
(GRN)
220V, AC, 50Hz
SINGLE PHASE
FUSE
(R)
(W)
(A-2)
(A-1)
(P)
HV. RELAY
(R)
(B-1)
(R)
LOW VOLTAGE TRANS FORMER
(D-1)
(W)
(W)
(I)
(2)
(W)
MONITOR RESISTOR
(GR)
(GR)
(B-2)
(GR)
MONITOR SWITCH
(GR)
OVEN THERMOSTAT
(R)
(I-2)
MAGNETRON THERMOSTAT
LAMP CONTROL SWITCH
OVEN LAMP
(W)
(NC)
(R)
(R)
(R)
(COM)
(NO)
(R)
(B-5)
PRIMARY INTERLOCK SWITCH
DC RELAY
(Y)
(I)
(RLU)
(BLK)
(W)
(W)
(W)
DC RELAY
(2)
(NO)
SECONDARY INTERLOCK SWITCH
(C-2)
STIRRER MOTOR
(C-1)
(BLK)
(R)
(COM)
(BLU)
BLOWER MOTOR
(BLK)
(BLU)
(B-3)
(BLU)
(BLK)
(T)
(B-4)
(Y)
D.O.M SWITCH
FAN MOTOR
(FLU)
(BLK)
(Vi)
(BLK)
RELAY (3)
(BLU)
(BLK)
(BPN)
(COM)
RESISTER
(NO)
(BRN)
(BLK)
HV TRANSFOMER
HV CAPACITOR
HV DIODE
MAGNETRON

Wining Color	
(BLK):Black	
(BLU):Blur	
(GRN):Green	(BRN):Brown
(W) :White	(GR) :Gray
(Y) :Yellow	
(R) :Red	

SCHEMATIC DIAGRAM

1. Idle Condition

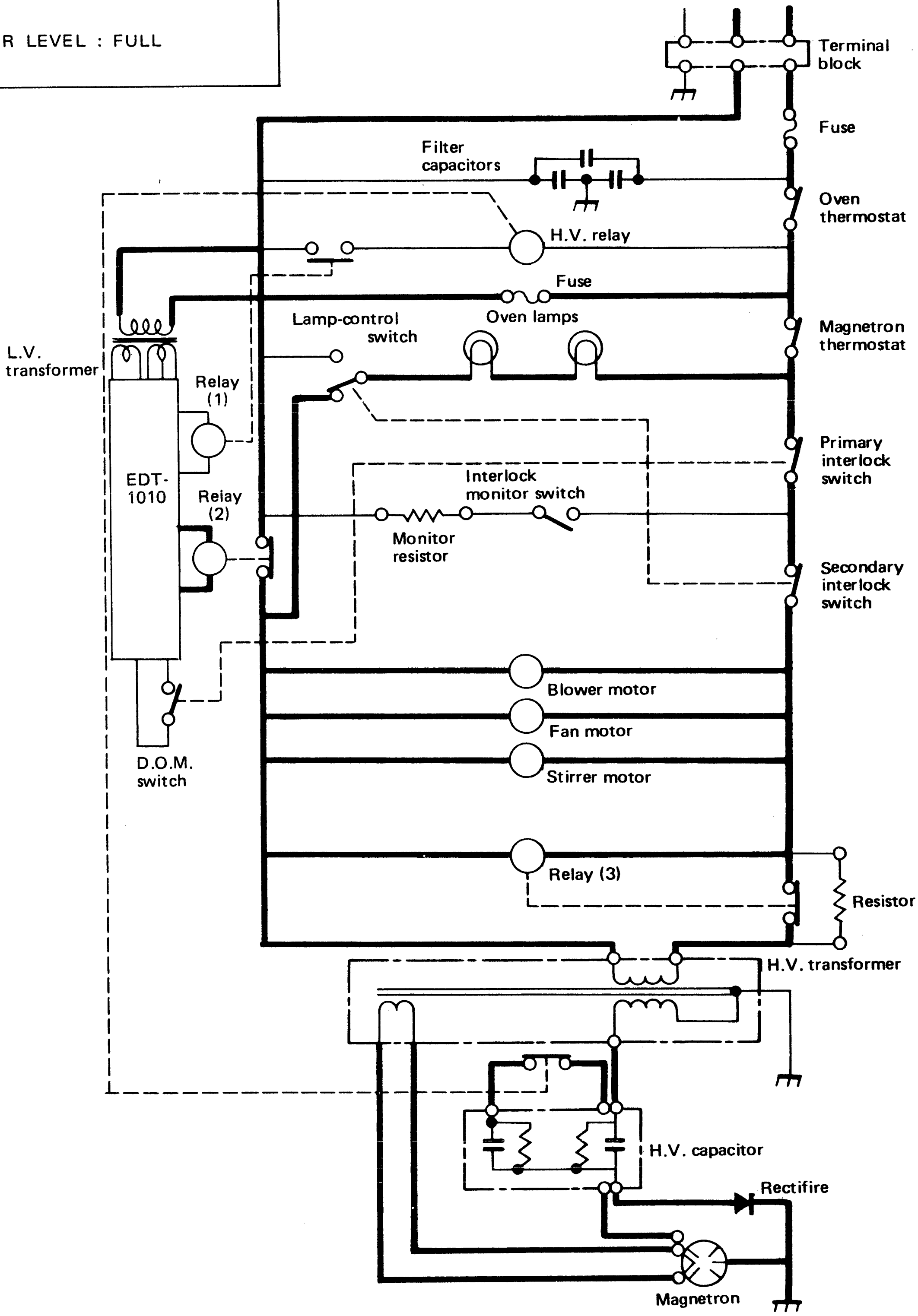
CONDITION OF OVEN
DOOR : OPEN


Terminal block
Fuse
Filter capacitors
Oven thermostat
H.V. relay
Fuse
L.V. transformer
Lamp-control switch
Oven lamps
Magnetron thermostat
Relay (1)
EDT-1010
Primary interlock switch
Interlock monitor switch
Monitor resistor
Relay (2)
Secondary interlock switch
Blower motor
Fan motor
Stirrer motor
D.O.M. switch
Relay (3)
Resistor
H.V. transformer
K.V. capacitor
Rectifire
Magnetron

SCHEMATIC DIAGRAM

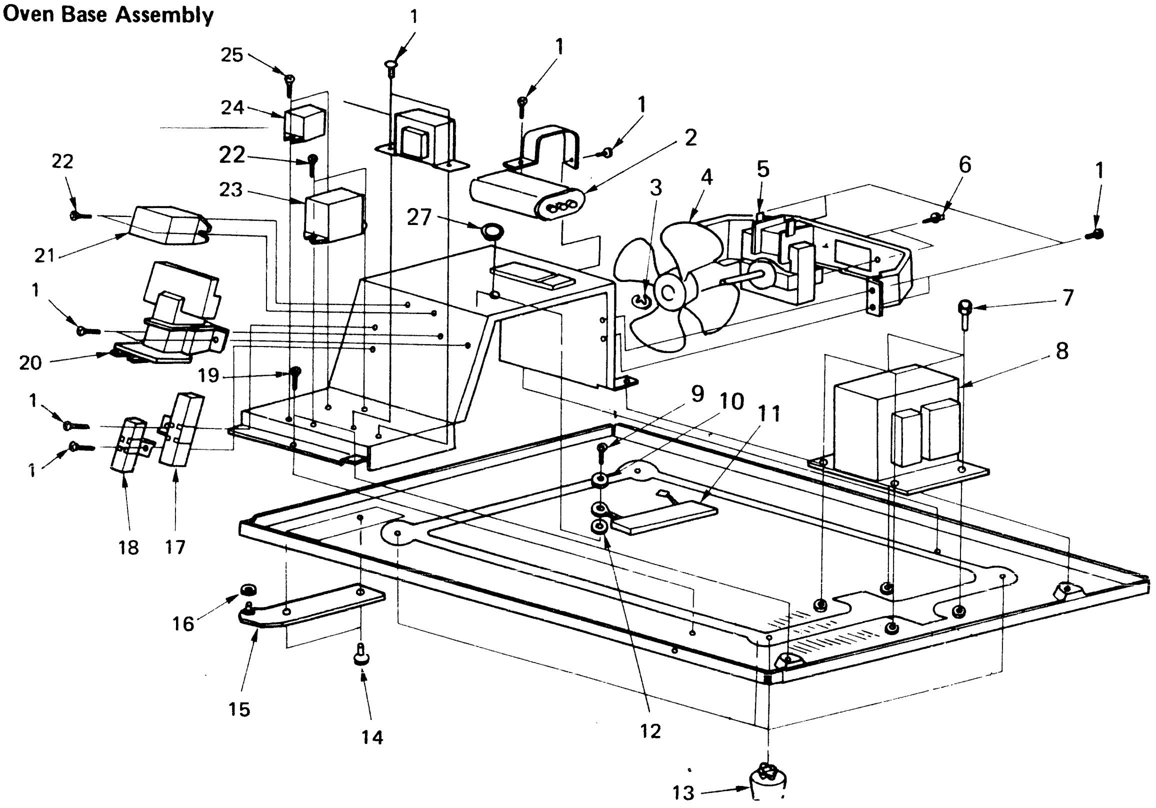
2. Cooking Condition

CONDITION OF OVEN
DOOR : CLOSED
POWER LEVEL : FULL


Terminal block
Fuse
Filter capacitors
Oven thermostat
H.V. relay
Fuse
Lamp-control switch
Oven lamps
Magnetron thermostat
L.V. transformer
Relay (1)
Primary interlock switch
EDT-1010
Relay (2)
Interlock monitor switch
Monitor resistor
Secondary interlock switch
Blower motor
Fan motor
Stirrer motor
D.O.M. switch
Relay (3)
Resistor
H.V. transformer
H.V. capacitor
Rectifire
Magnetron

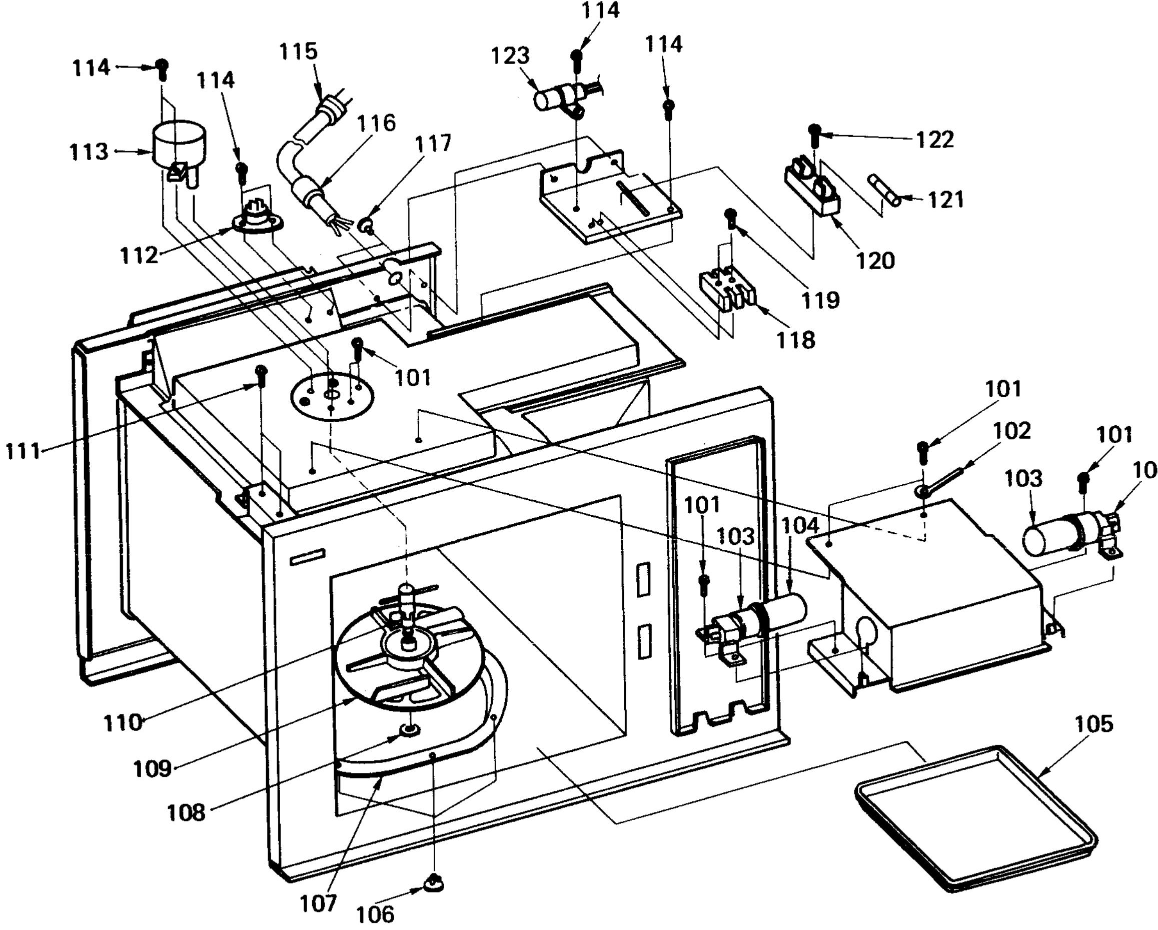
EXPLODED VIEWS AND PARTS LISTS

1. Oven Base Assembly



Location No.	Part No.	Description
1	32597883	Screw, 4x8 mm, Self Tapping, Truss Head
2	32508206	Capacitor, HV, Metalized Paper, 1.28 MFD, AC2450V
3	32597803	E Ring, 4 mm
4	32515088	Fan, Blower
5	32515087	Motor, AC220-240, 50Hz, Fan
6	32597112	Screw, 4x6 mm, Pan Head
7	32597046	Screw, 5x12 mm
8	32509198	Transformer,PX-1000D,HighVoltage Voltage
9	32597994	Screw, 4x8 mm, Self Tapping, Truss Head
10	32597110	Washer, Earth
11	32511056	Rectifier, HVR-7M, High Voltage
12	32597972	Washer, Lock, 4 mm
13	32558142	Foot
14	32597952	Screw, 5x12 mm, Hex, Head
15	32545188	Hinge, Bottom
16	32555932	Washer, Nylon
17	32507862	Resistor, 20 ohm
18	32507863	Resistor, 0.5 ohm
19	32597895	Screw, 4x6 mm, Self Tapping
20	32501066	Relay, C2B-A9
21	32501067	Relay, AC220V
22	32597984	Screw, 4x8 mm, Self Tapping, Pan Head
23	32501828	Relay, DC
24	32501063	Relay, DC
25	32547818	Screw, 3x8 mm, Self Tapping, Pan Head
26	32509203	Transformer,Power,PT1010ETD
27	32540446	Bush

2. Oven Assembly (1)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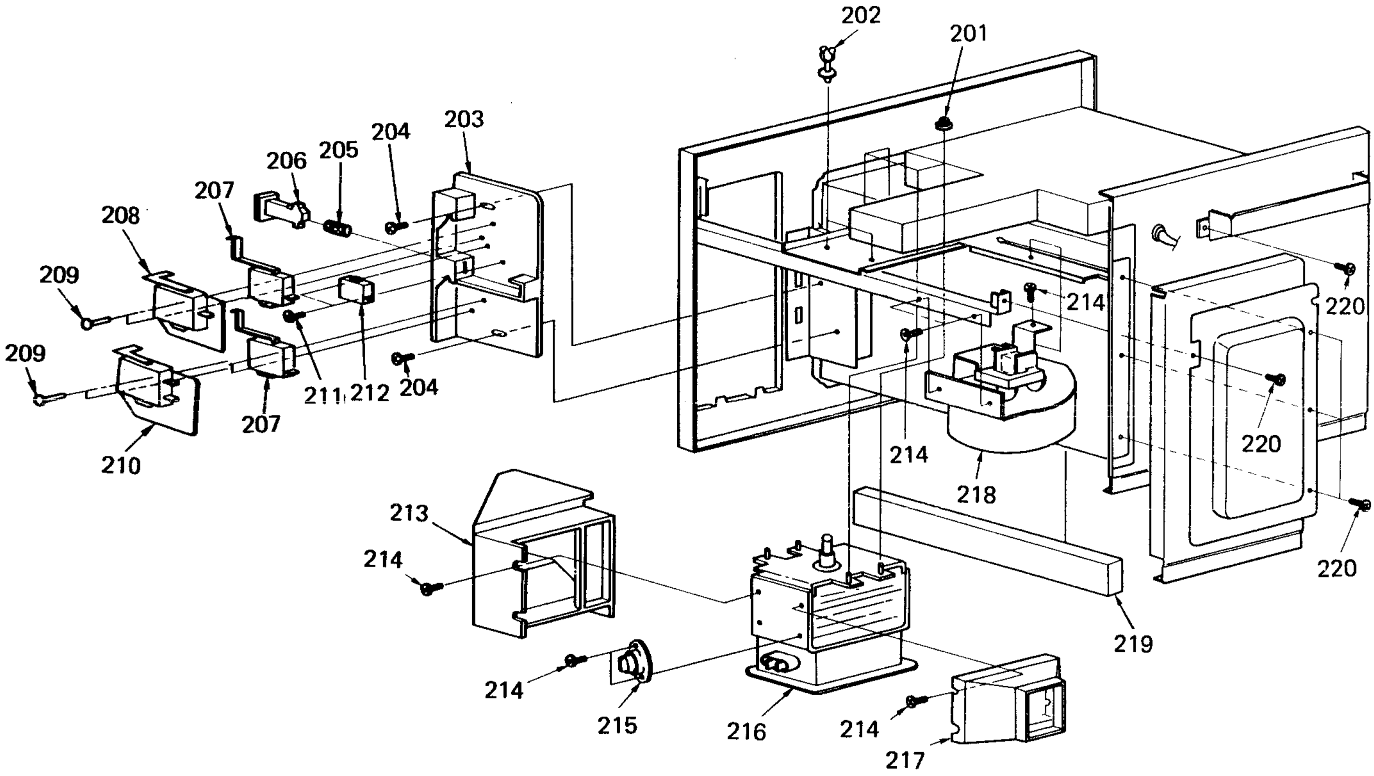
Location No.	Part No.	Description
101	32597895	Screw, 4x6 mm, Self Tapping
102	32541842	Clamp, Cord
103	32506829	Lamp, 120V, 25W
104	32505820	Socket, Lamp
105	32554356	Tray
106	32554102	Rivet, Plastic
107	32554358	Spatter Shield
108	32551074	Stop Ring, Stirrer Fan
109	32551104	Fan, Stirrer
110	32551103	Shaft, Stirrer Fan
111	32597952	Screw, 5x12 mm, Hex, Head
112	32502313	Thermostat, ST-5
113	32515086	Motor, Stirrer Fan, AC220-240V 50Hz

Location No.	Part No.	Description
114	32597883	Screw, 4x8 mm, Self Tapping, Truss Head
115	32617282	Power Cord
116	32541869	Clamp, Power Cord
117	32597111	Screw, 4x8 mm, Self Tapping
118	32504162	Terminal Block
119	32597883	Screw, 4x8 mm, Self Tapping, Truss Head
120	32541876	Holder, Fuse
121	32503036	Fuse, 250V, 12A
122	32597088	Screw, 3x10 mm, Pan Head
123	32508904	Capacitor, Paper, 0.05x0.006x2MFD, AC280V

3. Oven Assembly (2)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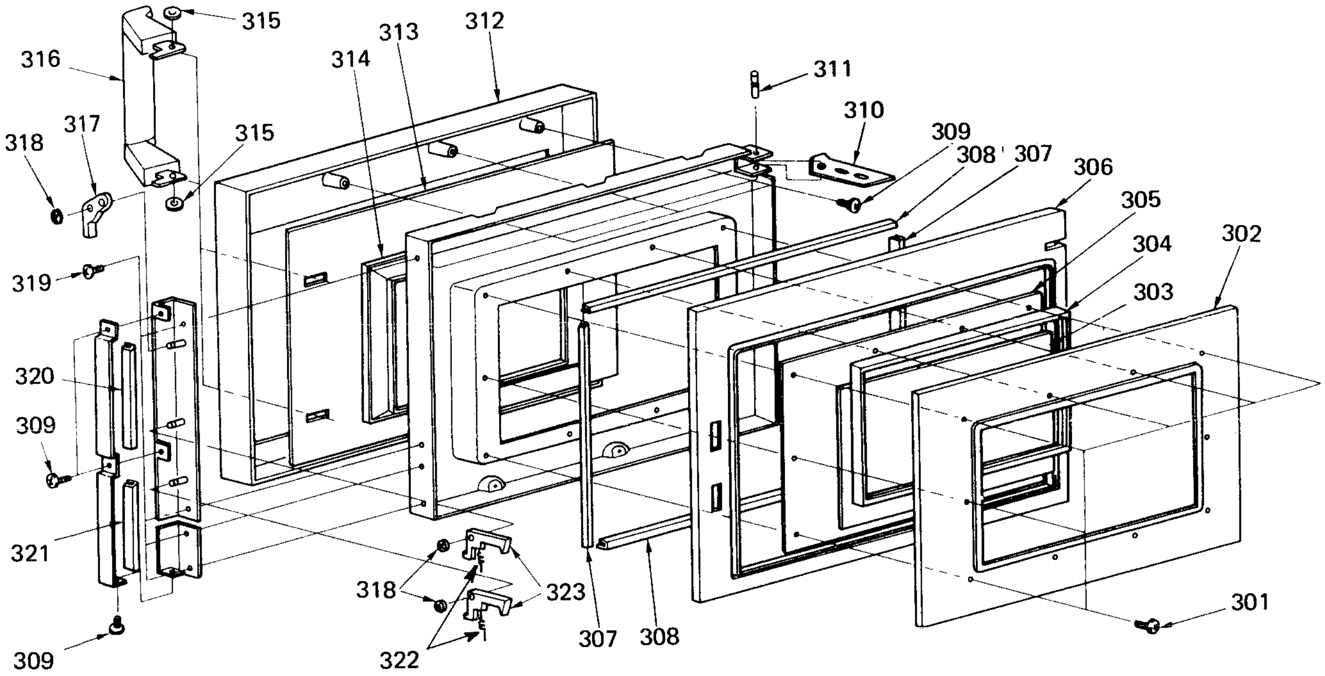
Location No.	Part No.	Description
201	32597019	Nut with Washer, M5
202	32540972	Clamp, Wire
203	32540462	Lock
204	32547825	Screw, 4x14 mm, Self Tapping
205	32545025	Spring, Latch
206	32540335	Slider, S
207	32502263	Switch, Micro
208	32502296	Switch, Micro
209	32597102	Screw, 3x26 mm, Self Tapping
210	32502324	Switch, Micro
211	32547815	Screw, 3x15 mm, Self Tapping

Location No.	Part No.	Description
212	32502239	Switch, Interlock, Monitor
213	32545302	Air Duct, 2
214	32597883	Screw, 4x8 mm, Self Tapping, Truss Head
215	32502313	Thermostat, ST-5
216	32512045	Magnetron, 2M137-M1
217	32557190	Air Duct, 1
218	32515089	Motor, Blower, AC220-240V 50Hz
219	32553083	Air Guide
220	32597810	Screw, 4x8 mm, Self Tapping

4. Door Assembly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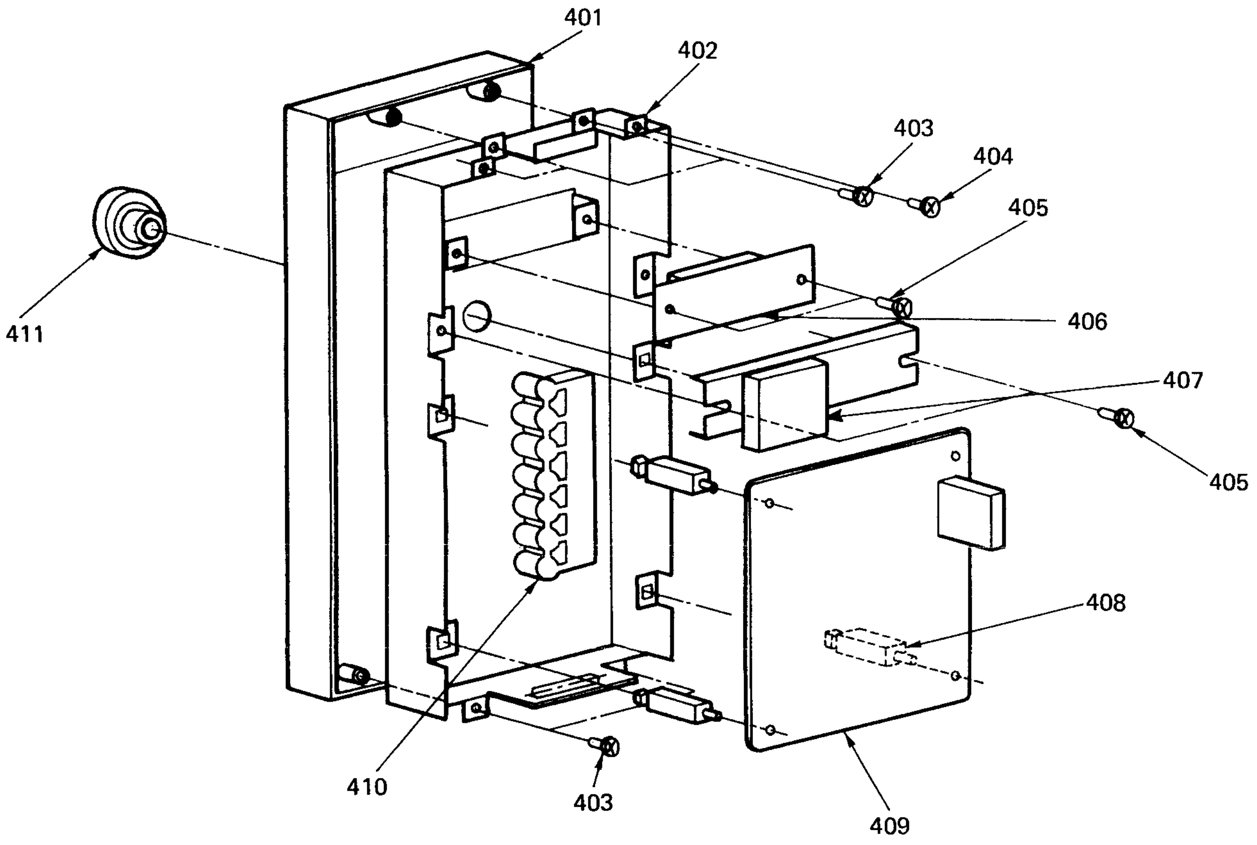
Location No.	Part No.	Description
301	32597101	Screw with Washer, 4x8
302	32554321	Contact Plate
303	32545189	Inner Barrier
304	32545185	Packing, Barrier
305	32545225	Scren
306	32545299	Cover, Door
307	32545180	Ferrite Rubber
308	32545182	Ferrite Rubber
309	32597883	Screw, 4x8 mm, Self Tapping, Truss Head
310	32545186	Hinge, Upper
311	32545183	Pin, Door Hinge

Location No.	Part No.	Description
312	32545301	Sash, Door
313	32545298	Barrier, Outside
314	32545297	Cover, Screw
315	32555932	Washer, Nylon
316	32545300	Handle Assy
317	32554320	Link Plate
318	32597803	E Ring, 4 mm
319	32597868	Screw, 4x8 mm, Self Tapping
320	32545304	Ferrite Rubber
321	32545303	Ferrite Rubber
322	32545227	Spring, Hook
323	32545187	Hook

5. Panel Assembly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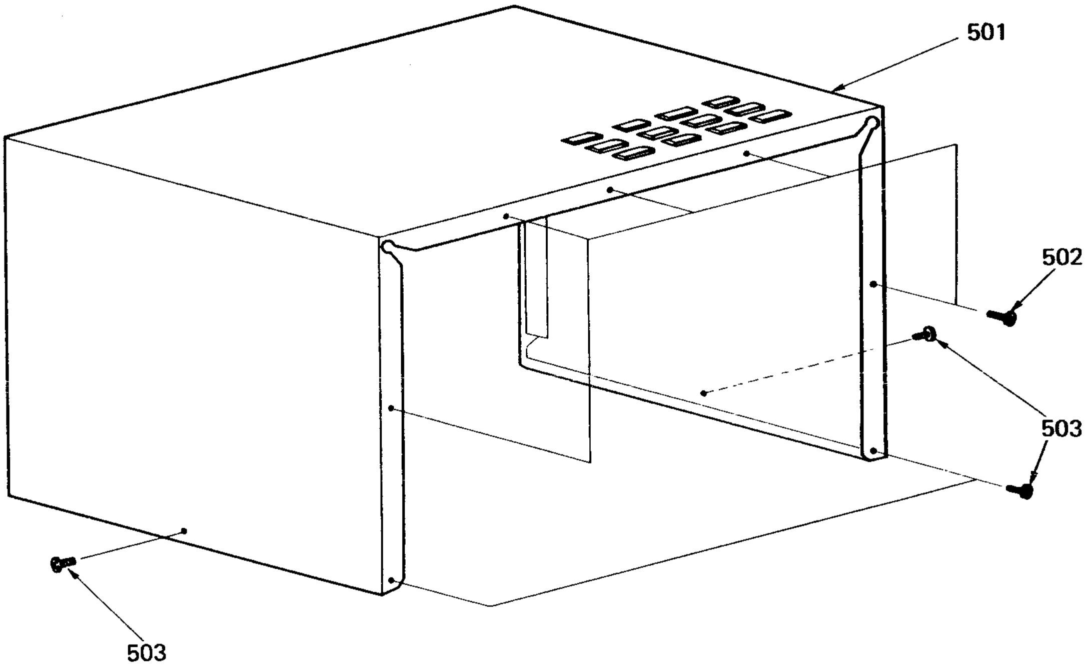
Location No.	Part No.	Description
401	32546278	Panel Sash
402	32502327	Key Board Ass'y, 1010
403	32597906	Screw, 4x10 mm,
404	32597111	Screw, 4x8 mm, Self Tapping
405	32597883	Screw, 4x8 mm, Self Tapping, Truss Head

Location No.	Part No.	Description
406	32504167	PC Board Ass'y, LED
407	32502323	Timer
408	32541873	Spacer
409	32504165	PC Board Ass'y, Main, EDT1010
410	32540513	Holder, LED
411	32546284	Knob, Timer

6. Cabinet Assembly



Location No.	Part No.	Description
501	32559359	Cabinet
502	32597111	Screw, 4x8 mm, Self Tapping
503	32597810	Screw, 4x8 mm, Self Tapping

7. Miscellaneous

Location No.	Part No.	Description
601	32588441	Owner's Manual, ER-1010ETD/ETE